

REMARKS

These amendments and remarks are fully responsive to the Official Action of May 13, 2009. Applicants traverse the outstanding rejections for at least the following reasons, and request reconsideration and further examination.

The Finality of the Outstanding Rejection is Improper

The rejections of the outstanding Official Action have been designated Final. Applicants respectfully request withdrawal of the finality of the prior rejections, entry of the instant amendments, and substantive consideration of these arguments.

The Official Action contains new grounds of rejection based upon new references, e.g., anticipation in view of Reculusa. It is asserted that applicants' amendments *necessitated* the new grounds of rejection, yet the prior rejection was maintained. Further, applicants' prior arguments alone distinguished the Shiratsuchi reference, and showed it to be non-analogous art as it relates to symmetrical particles, i.e., core and shell type, rather than the dissymmetrical particles claimed here. The prior amendment was offered merely to emphasize the previously stated characteristic of the dissymmetrical nature of the claimed particles.

As discussed below, the core and shell particles of Shiratsuchi are recognized by acknowledged authorities in the art as symmetrical particles. See Discussion of Reculusa II, below. Applicants' prior amendment did little more than clarify the applicants intent, and reiterated the characterizing phrase from the first line of the claim that what is claimed is a *dissymmetric particle*. Since the prior rejection was maintained, it cannot now be argued that applicants' amendments *necessitated* the

new grounds of rejection. And, as applicants must now respond to those rejections, they are entitled to have that response duly considered.

The amendments offered herein are again made to clarify the language of the claims rather than distinguish over the cited art. However, by virtue of arguments made in the new grounds of rejection and the newly cited Reculusa reference, applicants believe that the instant amendments will clarify the intended scope of the claims in light of that new reference. Alternatively, the proffered amendments will put the claims in better condition for consideration on appeal. Finally, entry of the amendments, in combination with the instant arguments, put the case in condition for allowance. For those reasons, entry of the amendments and due consideration of these remarks is appropriate.

Amendments to the Claims:

Applicants propose an amendment to claim 1 such that the dissymmetric particles comprise two parts:

- (1) a first part consisting of an inorganic material A and a second part consisting of an organic material B;
- (2) the second part is constituted by a single nodule, and
- (3) the outer surface of this nodule is bound to the outer surface of the first part so as to form said dissymmetric particle.

Reculusa

Claims 1-3, 5-10, 12, and 14 stand rejected over Reculusa et al. It is asserted that Reculusa "teaches a dissymmetric particle that reads on Applicant's claims 1, 3,

and 10." Reculusa reports the synthesis of Raspberry-like hybrid organic-inorganic materials consisting of spherical silica beads supporting smaller polystyrene particles. Reculusa describes those particles as raspberrylike hybrid particles or nanohybrids. E.g., Reculusa, Title, Abstract, and Figs. 3 & 4.

In a subsequent work, however, Reculusa, along with many of his co-authors of the cited Reculusa reference, expressly teach that such raspberrylike particles are symmetric particles. Reculusa et al., *Dissymmetrical Nanoparticles*, in *Dekker Encyclopedia of Nanoscience and Nanotechnology*, pp 943-953, at 944 (Marcel Dekker, Inc., 2004)(stating that raspberrylike particles as shown in, e.g, Fig. 1(f) are examples of symmetric particles) ("Reculusa II"). The teachings of both Reculusa and Reculusa II are consistent in the use of the term raspberrylike to describe certain particles, and those particles are expressly taught by Reculusa II to be symmetrical particles.

The assertion that the particles of Reculusa teach the claimed particles, which are expressly recited as dissymmetrical particles, is squarely at odds with the teachings of the same authors as found in Reculusa II. Accordingly, Reculusa does not teach the instant claimed particles.

Moreover, in a Raspberry-like particle disclosed by Reculusa, many independent and discrete units or nodules of polymer are bound to a silica particle. See, e.g., Reculusa, Figures 3, 6 and 7. On the contrary, however, the claimed invention expressly recites that only a single polymer nodule is bound to the inorganic particle. This feature is closely related to the dissymmetrical character of the particle. Thus, in addition to the reasons stated above, Reculusa does not anticipate, or render obvious, the claimed invention.

Applicants request reconsideration and withdrawal of the instant rejection over Reculusa.

Finally, Reculusa II refutes the assertion of the outstanding Official Action that the shape of the respective parts might be merely ornamentation, and thus would not patentably distinguish the claimed invention. Reculusa II expressly refutes any contention that the structure of the particles is mere ornamentation. Rather, Reculusa II clearly shows that symmetry versus dissymmetry is "one of the current main issues in prebiotic chemistry." Reculusa II at 943. Further, Reculusa II states that "[F]rom the viewpoint of the applications, dissymmetrical particles should be very promising compared with symmetrical particles." Thus, the suggestion that the structure of these particles is mere ornamentation is contrary to the teachings of accepted authorities within the art. Further, it supports the patentable distinction of the instant claims over the cited references, Shiratsuchi and Reculusa.

Shiratsuchi

Shiratsuchi does not anticipate the claimed particles. As discussed above, Reculusa II teaches that symmetrical particles and dissymmetrical particles are functionally distinct. Reculusa II expressly characterizes the core-shell particles such as are disclosed in Shiratsuchi as symmetrical particles. Reculusa II, p. 944, last paragraph of left column, and Fig. 1(d). Thus, Reculusa expressly refutes the assertion that Shiratsuchi's particles anticipate the claimed invention.

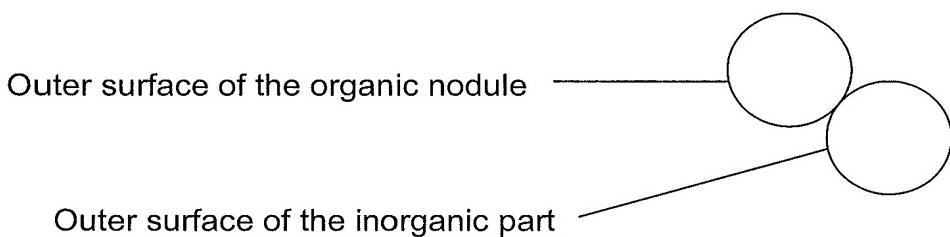
Applicants also proffer additional amendments to the claims to more particularly and distinctly recite what applicants perceive to be their invention. Those clarifications also make more explicit the distinctions over Shiratsuchi and Reculusa.

Claim 1 now excludes each of the parts of the particle from having additional components. It should now be clear that Shiratsuchi does not disclose or suggest the dissymmetric particles as now claimed.

Claim 1 would now also more explicitly recite that the outer surface of the organic nodule is bound to the outer surface of the inorganic part so as to form a snowman or a dumbbell or the like. See, e.g., Figs. 1-6.

In contrast, a particle of the core-shell type as disclosed by Shiratsuchi comprises two parts wherein the inner surface of a first part is bound to the outer surface of a second part. The particles of the instant claims, and as shown in the Figures of the application, are illustrated in the following schematic, as compared to the core and shell type particles of Shiratsuchi.

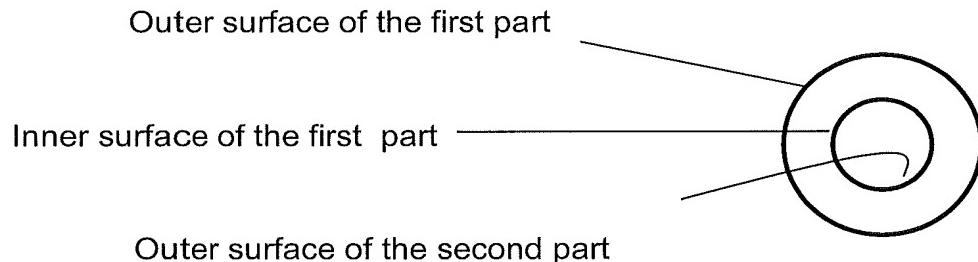
Claimed Particles



Shiratsuchi's Particles

A particle of the core-shell type as disclosed by Shiratsuchi is distinct from the claimed particles. Although it also comprises two parts, those parts are in a

fundamentally different physical relationship: the inner surface of a first part is bound to the outer surface of an interior second part.



As can be seen from the above schematic, the claimed subject-matter is neither anticipated nor rendered obvious by Shiratsuchi. The claims as they now stand expressly recite that the outer surface of the nodule of one part is bound to the outer surface of the other part so as to form a dissymmetric particle.

Shiratsuchi does not teach or suggest such an orientation of the various parts of the particle, and so it does not teach or suggest the claimed dissymmetric particle. Furthermore, and as discussed above, Reculusa II expressly teaches that particles such as the core/shell particles of Shiratsuchi are symmetrical particles, and that such symmetrical particles are functionally distinct over dissymmetrical particles. Reculusa II, at 943-944. Reconsideration and withdrawal of the rejection is respectfully requested.

Shiratsuchi and Eriyama Fail to Suggest Claims 13 & 39

The Official Action maintains the rejection that claims 13 and 39 would have been obvious over Shiratsuchi in view of Eriyama (US 6,160,067). Applicants again traverse the rejection.

Shiratsuchi discloses symmetrical particles, not dissymmetrical particles as are claimed. See, Reculusa II. Thus, and for substantially the reasons shown above, Shiratsuchi alone would not have rendered obvious the embodiments of claims 13 and 39 (or any other of the claims) obvious.

Eriyama does not cure the deficiencies of Shiratsuchi. As with Shiratsuchi, Eriyama does not disclose or describe dissymmetric particles. Rather, Eriyama presents methods and materials for making reactive silica particles by chemically bonding the silica to an organic compound by a silyloxy group. The resulting materials are said to be useful in coating materials.

Eriyama states that silica particles of various shapes may be employed (e.g., spherical, rod, plate, etc.). However, those are the silica particles themselves that are coupled with an organic compound. It is not a recitation or description of the resulting composite particles. Even if one were to assume that the resulting particles retained the same overall shape, the particles would likely be symmetrical. That is, the organic compound bound to the silica particle by the silyloxy group would be expected by one skilled in the art to bind to the silica particle substantially uniformly around the exterior of the silica particle. Thus, those particles would likely resemble the core/shell particles of the Shiratsuchi reference, i.e., they would be symmetrical, having a core of the silica particle and a shell of the hydrolyzable silane compound. The rejection fails to show that either Shiratsuchi or Eriyama disclose or suggest the

formation of *disymmetric* particles as that term is used in the instant specification and claims, and as used by recognized authorities within the art, e.g., Reculusa II.

Further, the ordinary skilled worker, attempting to create the dissymmetric particles of the instant claims, would have had no reasoned basis for combining these two references; and, even if such worker had combined the two references, there would not have been a reasoned basis to rely on the combined teachings of symmetrical particles in attempting to produce dissymmetrical particles.

In view of the fact that the two references are devoted to the fabrication of particles distinct from those of the instant claims, the combined references are non-analogous art relative to the claimed invention. The references, together or alone, fail to teach or suggest the claimed invention, generally; and particularly the embodiments of claim 13 and 39. Thus, it is respectfully submitted that the invention of claims 13 and 39 would not have been obvious over the combination of Shiratsuchi and Eriyama. Applicants respectfully request further examination, and reconsideration and withdrawal of the §103(a) rejection.

Conclusion

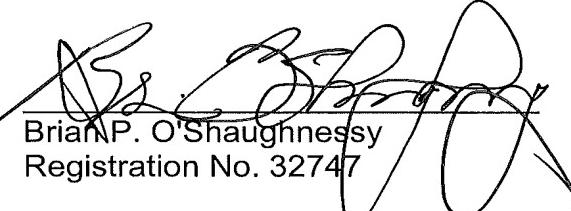
In view of the foregoing amendments and remarks, applicants respectfully request reconsideration and withdrawal of all outstanding rejections. Applicants submit that the claims are now in condition for allowance, and respectfully request formal notification to that effect. If, however, the Examiner perceives any impediments to such a notice of allowability, whether substantive or formal, the Examiner is encouraged to call Applicants' attorney at the number provided below. Such informal communication will expedite examination and disposition of this case.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: July 16, 2009

By:


Brian P. O'Shaughnessy
Registration No. 32747

P.O. Box 1404
Alexandria, VA 22313-1404
703 836 6620